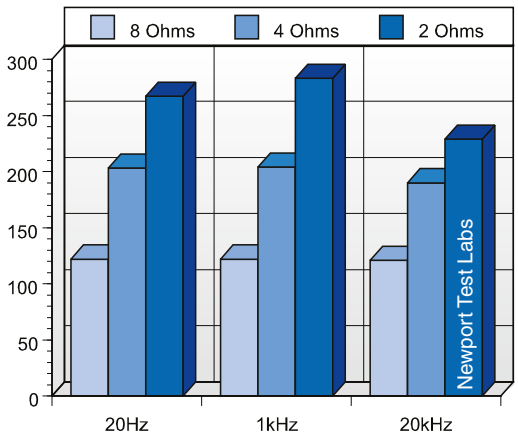
Marantz PM-KI-Pearl

INTEGRATED AMPLIFIER

If you know anything at all about the history of this amplifier, you may well be wondering why I am reviewing it at all. First, you have to know that Ken Ishiwata has been a spokesman, designer and 'brand advisor' for Marantz for 30 years. He has put his initials on various Marantz products over the years, all of which have been especially 'souped-up' versions of existing ones. This time around, the model he's souped-up is the new PM-15S2 and, because it's his 30th anniversary at Marantz, it's not a 'Signature Model' as such, but a 'K.I. 30th Anniversary' model. To celebrate this milestone, Ishiwata was apparently allocated a larger-than-usual budget for his high-performance modifications, so this 30th Anniversary model is more 'souped-up' than usual. It will also be a 'Limited Edition' by virtue of the fact that it will have to cease production at the end of the year. US reviewer Michael Fremer says he was told that only 500 of this particular model will be made, but I could not independently verify that claim.



Power Output: Single channel driven into 8-ohm, 4-ohm and 2-ohm non-inductive loads at 20Hz, 1kHz and 20kHz. [PM-KI]

THE EQUIPMENT

Because the single most expensive part of any amplifier is the exterior casing and metalwork, Ishiwata has used the PM-15S2's casing for the PM-KI-Pearl but, as is his wont, he has copper-plated the chassis and rear plate (for reduced ground impedances and eddy currents) and also used a 5mm top plate as well as a heavier-gauge bottom plate so there are some 'exterior' differences. Inside the chassis, even though there are the same PCBs and many individual components shared with the PM-15S2 there are also differences, with the PM-KI-Pearl sporting a larger, higher-capacity toroidal transformer, higher-quality capacitors throughout (including the large electrolytics in the power supply), better-quality diodes and closer-tolerance resistors. He's also used up-specced versions of Marantz's HDAM-SA3 ultra-high-speed amplifier modules, and hand-selected the ones used in the phono stage.

One circuit feature of the PM-KI-Pearl dubbed 'F.C.B.S.' initially mystified me completely. The initials stand for 'Floating Control Bus System.' What the circuit is designed to do is allow you to link up to four PM-KI-Pearl amplifiers so you can bi-amp a stereo pair of speakers (using two PM-KI-Pearls) or use three PM-KI-Pearls to power a 5.1-channel home theatre system, or four for a 7.1-channel system. While I can see the sense of this approach, a stack of four PM-KI-Pearls would be intimidatingly high, at around 1.5 metres… assuming you follow Marantz's recommendations for ventilation. (Note that the rather less expensive PM-15S2 also has F.C.B.S., so for multi-channel use, you could save quite a bit of dough by using a single PM-KI-Pearl for the front left and right channels, and a pair of PM-15S2s for the centre and rear channels.)

As you can see from the front panel, although the PM-KI-Pearl can be operated via remote control (it's actually essential for the F.C.B.S. mode), there are sufficient manual controls on the front panel that it won't matter if you lose it. The bass and treble tone controls to the right of the power on/off button can be switched in or out of circuit, but the button to do this is 'way off to the left, which didn't seem very intuitive to me. Also, from the size of the bass and treble controls, it would appear Ishiwata isn't keen that you use them, because they are so small they're actually quite difficult to grip and to turn.

The 'Speakers' button on the front panel merely switches the speakers on or off, so you can listen with headphones—you don't get A–B speaker switching. The 'Phono' button, on the other hand, does switch gain stages, so you can use a low-output (usually moving coil) or a high-output (usually moving-magnet) phono cartridge. However, to select the 'Phono' input, you need to use the large, continuous, rotary input selector. This switches through CD, Line-1, Line-2, Recorder1, Recorder2, and Phono and unlike some continuously rotary controls, it will continue to cycle through in this order if you continue to rotate the control in a clockwise direction—there's no need to reverse direction and go anti-clockwise if you don't want to. This type of control

depends on using internal relays: the ones inside the PM-KI-Pearl click rather loudly!

The 'ATT' button you can see on the front panel would normally be known as a 'Mute' button, except that on this amplifier, Marantz allows you to choose lesser degrees of attenuation than a total Mute. The factory default is –20dB, but you can increase this to either –40dB or all the way to 'Infinity' (aka 'Mute'). At most normal listening levels, the –40dB setting is just as effective as the 'Infinity' setting, so arguably you don't have quite as much choice as it seems you have. As for the 'Display' button, its operation is a little unusual. In normal operation, the fascia of the PM-KI-Pearl is illuminated by blue LEDs concealed behind the 'scallops' in the front panel. It's so attractive that I can't imagine why you'd want to turn it off, but you can, using the 'Display' button, upon which the central circular Display also switches off. This seems very sensible, but this switch works differently on the matching PM-SACD-Pearl SACD player, where the central display always stays on, and the 'Display' button only turns the blue fascia lighting on and off. If you do run the amplifier 'blacked-out', all the display lights will illuminate briefly whenever you change volume level or switch sources.

the process for adjusting trim and balance for multiple amplifiers is more difficult to get your head around.

Volume display is also a little unusual. As you turn the rotary volume control (which has a smooth action), an LCD display in the central panel shows relative output level in dB, stepping down from an initial 'MAX' first to '0.0' and then in 0.5dB steps down to –100, after which it displays the 'Infinity' symbol, and after that 'MIN.' I'm not sure if this is a programming error, or if Marantz is catering for those people who don't know that '0dB' and 'Max' are the same thing, and that 'Infinity' and 'Min' are also the same.

You may have noticed that there's no balance control on the front panel. You won't find one on the remote either. Instead, on the remote, you'll find a 'Trim' control that does the same thing. The reason it's called 'Trim' rather than 'Balance' is because when using multiple PM-KI-Pearls (or PM-15S2s) in F.C.B.S. mode, you may need to trim volume levels of each amplifier, as well as adjust channel balance. Because of this, the trim control has a wider-than-usual 9dB range. Using the Trim circuit to adjust balance on the one amplifier is easy, but the process for adjusting trim *and* balance for multiple amplifiers is more difficult to get your head around.

The rear panel has standard RCA inputs for line level inputs and outputs and for the phono inputs, and multi-way binding posts for speaker outputs. Small phone jacks are required for the F.C.B.S. inputs and outputs. To facilitate bi-amplified operation using a pair of PM-KI-Pearls, there's a 'Bi-Amp' switch with positions for 'Bi-Amp' and 'Stereo'.

IN USE AND LISTENING SESSIONS

Installing the PM-KI-Pearl was straight-forward until I tried to remove the 'plugs' in the speaker terminals so I could insert my speaker wires, which are terminated with gold-plated banana plugs. Do you think I could get the plastic inserts out? I did, eventually, but Marantz is obviously hell-bent on making it as difficult as possible, to ensure conformity with EU regulations that require them to be blocked off.

The amplifier warmed up very quickly, indeed so quickly that I wondered if continuous operation might result in the chassis becoming too hot and triggering the protection

MARANTZ PM-KI-PEARL
Integrated Amplifier

BRAND: Marantz
MODEL: PM-KI-Pearl
CATEGORY: Integrated Amplifier
RRP: $4,990
WARRANTY: Three Years
DISTRIBUTOR: QualiFi Pty Ltd
ADDRESS: 24 Lionel Road
Mt Waverley, VIC 3149
☎ **1800 242 426** ☎ **(03) 8542 1111**
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- Bi-ampable/ F.C.B.S.-able
- Full-featured
- Very powerful

- No standby mode
- 'A' speakers only

LAB REPORT

Readers interested in a full technical appraisal of the performance of the Marantz PM-KI-Pearl should continue on and read the LABORATORY REPORT published on page 60 Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

Lab Report on page 60

circuitry, but this never transpired, despite me leaving the amplifier operating continuously for more than a week, and there being several +30° days during that time. However, when I deliberately blocked the vents just to see what would happen, the casing temperature did rise quite alarmingly, so I would certainly pay attention to the instructions in the Owners Manual regarding the spaces required around the amplifier for ventilation.

The PM-KI-Pearl delivered its power smoothly, and the volume control enables super-fine control of output volume, which I liked immensely, even though it did require rather more rotation of the volume control than I'm used to. Bass frequencies were delivered in a completely uniform manner, irrespective of volume level, and that manner was with perfect control, so the bottom end always sounded firm and solid. When I turned up the volume, the tonal quality was the same, so even at high SPLs, the solidity of the bass sound wasn't tinged with the additional 'thwack' sound that indicates a power supply that is running out of puff. The stability of the power supply was also in evidence when I listened to music where high levels of bass accompanied higher frequency musical information. With lesser-quality amps, you can hear the higher frequencies being modulated as the bass notes suck the power supply dry. Listening to the PM-KI-Pearl, it was as if I were listening to a bi-amped system, with the bass strands kept completely separate from the treble. I was also impressed by the PM-KI-Pearl's ability to control unwanted cone motion. It perfectly controlled a pair of cabinets containing 15-inch bass drivers: there was no overhang at all.

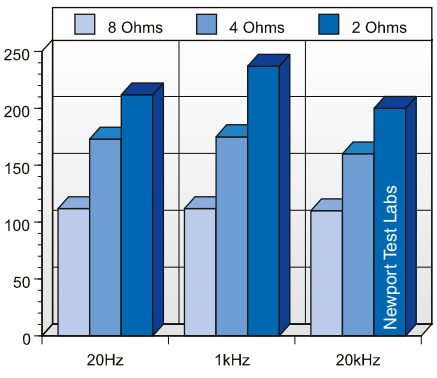
Midrange sound was equally impressive, particularly when it came to imaging, so that horizontal movements of vocalists and instrumentalists in front of the microphone position were captured and delivered with pin-point precision. When multiple vocal sources were moving across multiple microphones (*á la* Motown) I couldn't hear any sonic blur at all. I also found the sonic character of the PM-KI-Pearl's midrange to be completely neutral—no audible softness, no harshness, no discernible texture. If you want to hear exactly what was recorded, this Marantz amp tells you like it is. If, during your auditions, you hear any sonic aberrations, I can assure you that the Marantz is revealing stuff that's buried in the recording itself!

I have already touched on the quality of the treble sound, but I'll revisit it if only to reinforce my opinion that it's flawless, and perfectly transparent. This transparency is emphasised by the lack of circuit noise, which means that if you're listening in a quiet room to a recording of a single chime, for example, you can hear the sound decay for so long that eventually, you're not sure whether or not it's still there at all.

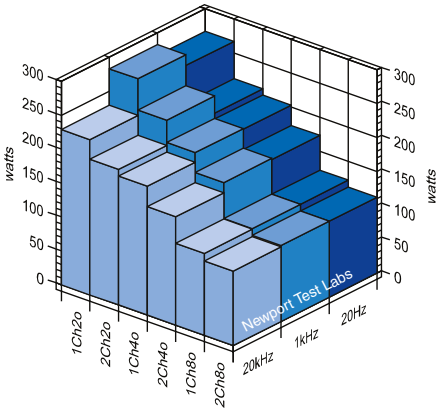
Most of my auditioning involved using the matching Marantz PM-SACD player (a review of which will soon appear in *Australian Hi-Fi Magazine*) as a source, but I also span some vinyl and can report that the phono stage in the PM-KI-Pearl far exceeded my expectations, returning performance with both moving-coil and moving-magnet cartridges that was almost the equal of my dedicated outboard phono stage. In the end, I did prefer the sound and performance of my outboard phono stage, but if I didn't already own it, I'd be perfectly happy using the one onboard the Marantz.

CONCLUSION

The Marantz PM-KI-Pearl is without any doubt an outstandingly good stereo amplifier—so good, indeed, that I can't help but wonder if Ishiwata would have been better advised to omit the bi-amping and F.C.B.S. circuits, and the complicated 'Trim' function (and maybe even that above-average phono stage, but my internal jury's still out on that one), in addition to 'souping up' the internal components. That said, I do like the bi-amp capability, which I am certain many more people will use than they do the F.C.B.S. circuitry… and I can also certainly appreciate the cachet of this model being a '30th Anniversary' edition. ***greg borrowman***



Power Output: Both channels driven into 8-ohm, 4-ohm and 2-ohm non-inductive loads at 20Hz, 1kHz and 20kHz.[PM-KI]



Power Output: Single and both channels driven into 8-ohm, 4-ohm and 2-ohm non-inductive loads at 20Hz, 1kHz and 20kHz.

LAB REPORT PAGE 60

SEE REVIEW ON PAGE 24

TEST RESULTS

Marantz has a history of under-specifying the power output of its amplifiers, so I wasn't at all surprised to see that on *Newport Test Labs*' test bench, the PM-KI-Pearl comfortably delivered a minimum 110-watts per channel into 8Ω (both channels driven) and, under the same conditions, a minimum 160-watts per channel into 4Ω and 200-watts per channel into 2Ω. That is, all output levels were well above specification. You can see from the output levels in the accompanying table—and the bar graphs published with the main review—that in all cases the limiting factor on 20Hz-20kHz power output was the amplifier's performance at high-frequencies (in this case, at 20kHz) but in fact the power output was remarkably constant irrespective of the test frequency. Note particularly the high power levels that are available right down at 20Hz, under all test conditions—and even into 2Ω loads. The Marantz's ability to deliver 267-watts at 20Hz into 2Ω, for example, means a continuous current ability of more than 11-amps.

The frequency responses again show Marantz erring on the cautious side with its specifications, with the company claiming a response of 5Hz to 100kHz and *Newport Test Labs* measuring the review PM-KI-Pearl with a frequency response of 0.7Hz to 310kHz –3dB! The 20Hz – 20kHz response was within 0.18dB, as you can see on *Graph 5*. Note, however, the rising response at low frequencies, which seems to be a quirk of the design, in that the low-frequency response rose as the frequency decreased, to eventually peak at 15dB at 2Hz, before rolling off rapidly to d.c. *Graph 5* also shows the frequency response into a typical loudspeaker load with the tone controls in circuit, but at the 'detent' position. You can see the response rolls off below 50Hz to around 12Hz (before rising again to peak at 2Hz), but above 50Hz, there is very little variation in the response, indicating a low output impedance (it was measured at 0.0399Ω), and therefore a high damping factor. Despite the l.f. roll-off when the tone controls are in circuit, the audio band response is still an excellent 20Hz to 20kHz ±0.25dB.

The action of the tone control circuit was unusual, in that it was more parametric than Baxandall, with maximum bass boost and cut of 10dB occurring at 50Hz and with a particularly high Q, so that by 150Hz, there was only around 3dB of boost and cut. This means you'd be able to extract quite a bit more bass from a small bookshelf speaker without inducing any midrange coloration—though you'd have to be careful not to overpower the driver! The treble boost peaks at 20kHz, again with a very high Q. The effect on the midrange is minor—less than 1dB, which is excellent.

Channel separation was also excellent, particularly at 1kHz, where *Newport Test Labs* measured 91dB, but it held up well at 20Hz (68dB) and at 20kHz (72dB). Channel balance was 0.085dB at 1kHz, well below the level of perception. Also below the level of perception

Marantz PM KI Pearl Integrated Amplifier - Test Results

Channel	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8Ω	122	20.8	122	20.8	121	20.8
2	8Ω	112	20.5	112	20.5	110	20.4
1	4Ω	203	23.1	204	23.1	190	22.8
2	4Ω	173	22.4	175	22.4	160	22.0
1	2Ω	267	24.3	283	24.5	229	23.6
2	2Ω	212	23.3	237	23.7	200	23.0

Note: Note: Figures in the dBW column represent the output level, in decibels, referred to one watt output.

Test	Measured Result	Units/Comment
Frequency Response @ 1 watt	0.8Hz–170kHz	–1dB
Frequency Response @ 1 watt	0.7Hz–310kHz	–3dB
Channel Separation	68dB/91dB/72dB	(20Hz/1kHz/20kHz)
Channel Balance	0.085dB	@ 1kHz
Interchannel Phase	0.03/0.11/0.07	deg (20Hz/1k/20k)
THD+N	0.006% / 0.004%	1 watt/rated o/p
S/N Ratio (unweighted/weighted)	84dB/90dB	dB re 1 watt output
S/N Ratio (unweighted/weighted)	94dB/100dB	dB re rated output
Input Sensitivity (CD input)	23.5mV/221mV	(1 watt/rated o/p)
Output Impedance	0.0399Ω	OC = 2.0715V
Damping Factor	200	@ 1kHz
Power Consumption	N/A - 34 watts	Standby/On
Power Consumption	56 watts / 326 watts	1-watt/Rated op
Mains Voltage Variation	241–257 volts	Min–Max

was inter-channel phase, with figures so low that you can read them for yourself in the test result chart.

Total harmonic distortion (THD) was vanishingly low at 1-watt output levels, as you can see from *Graph 1* (into 8Ω) and *Graph 2* (into 4Ω). In both cases the second harmonic distortion component is sitting down at around –95dB (0.001%) and the third harmonic at –105dB (0.0005%). The only significant difference between the Marantz PM-KI-Pearl's performance into the two loads is the level of the fifth harmonic, which is at –110dB (0.0003%) when driving 8Ω loads and –93dB (0.002%) into 4Ω. Note the noise floor is sitting at –120dB (0.0001%) below 1-watt for the most part, and even at low frequencies (the extreme left of the graph) rises to only –100dB (0.001%)

Graph 3 and *Graph 4* show THD at rated output. You can see that the low-order harmonic distortion components are almost identical irrespective of loading, and that all the higher-order harmonic components are a) odd-order and b) higher when driving 4Ω loads than when driving 8Ω. However, except for the first two distortion components, which sit at around –85dB (0.005%) and -96dB (0.001%), all higher-order distortion components are more than 110dB down (0.0003%) when driving 8Ω loads and more than 100dB down when driving 4Ω loads, and so would be completely inaudible. The overall wideband THD+N figures measured by *Newport Test Labs* were 0.006% (re 1-watt output) and 0.004% (re 90-watt output).

Intermodulation distortion (CCIF) is shown in *Graph 6*. Again, the Marantz returned excellent performance, with very little regenerated signal at 1kHz (–77dB/0.014%), and only two side-bands around the two test frequencies (19kHz and 20kHz), both more than 90dB down. (Ignore the spuriae around 24kHz, which is not related to the amplifier under test.)

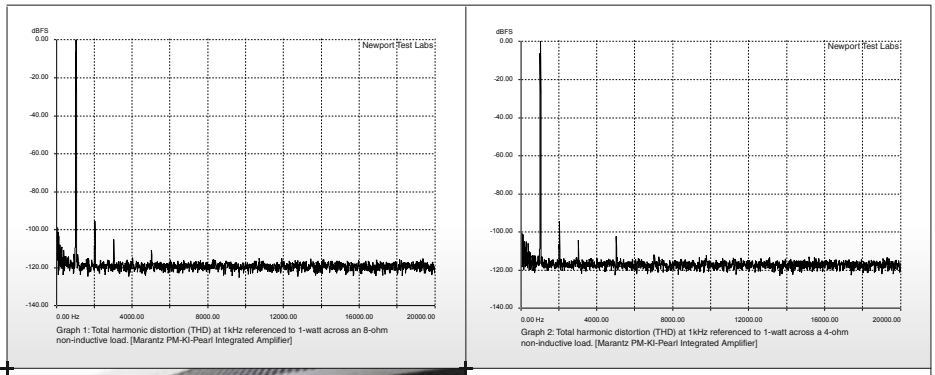
Signal-to-noise ratios were good, as you can see from the results tabulated in the accompanying table, with the PM-KI-Pearl hitting the magic 100dB figure when reference to rated output, and with A-weighting applied. (The 1-watt S/N figures allow you to accurately compare the noise performance against other amplifiers with different power output ratings, but I don't think you'd find many that would better the 90dB A-weighted result returned by the PM-KI-Pearl.)

The input sensitivity of the CD input was 23.5mV for one-watt output, and 221mV for rated output, while for the phono input it was 250µV (MC) and 2.5mV (MM) with the phono overload margin in both cases exceeding 30dB.

The Marantz PM-KI-Pearl does not have a standby mode, so if you leave it switched on when you're not using it, it will draw 34-watts from the mains power continuously, with consumption increasing to around 56-watts in ordinary day-to-day use, and to 326-watts when it's being driven to rated output.

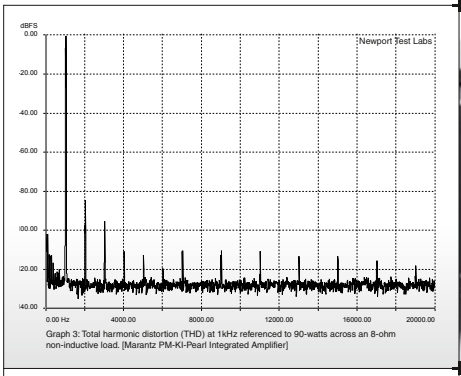
Overall, I assessed the measured performance of the Marantz PM-KI-Pearl as excellent.

Steve Holding

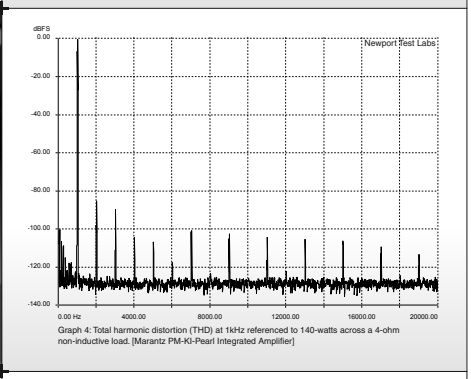


Graph 1: Total harmonic distortion (THD) at 1kHz referenced to 1-watt across an 8-ohm non-inductive load. [Marantz PM-KI-Pearl Integrated Amplifier]

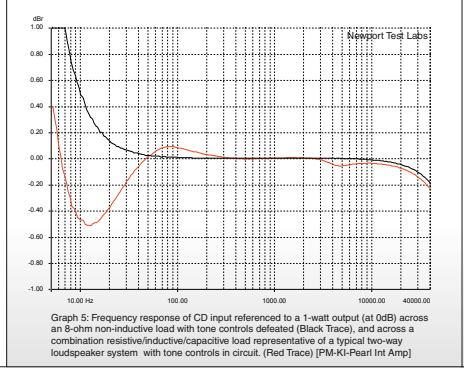
Graph 2: Total harmonic distortion (THD) at 1kHz referenced to 1-watt across a 4-ohm non-inductive load. [Marantz PM-KI-Pearl Integrated Amplifier]



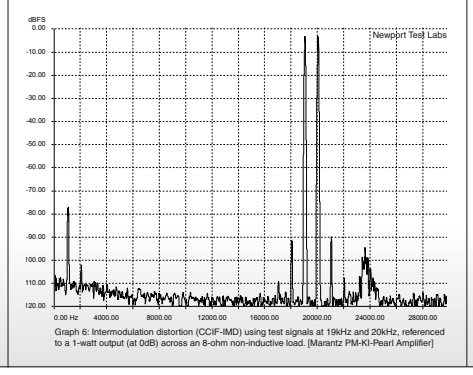
Graph 3: Total harmonic distortion (THD) at 1kHz referenced to 90-watts across an 8-ohm non-inductive load. [Marantz PM-KI-Pearl Integrated Amplifier]



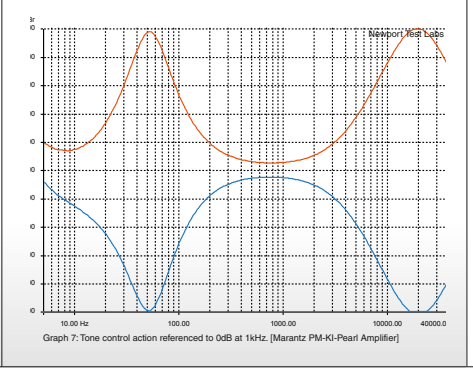
Graph 4: Total harmonic distortion (THD) at 1kHz referenced to 140-watts across a 4-ohm non-inductive load. [Marantz PM-KI-Pearl Integrated Amplifier]



Graph 5: Frequency response of CD input referenced to a 1-watt output (at 0dB) across an 8-ohm non-inductive load with tone controls defeated (Black Trace), and across a combination resistive/inductive/capacitive load representative of a typical two-way loudspeaker system with tone controls in circuit. (Red Trace) [PM-KI-Pearl Int Amp]



Graph 6: Intermodulation distortion (CCIF-IMD) using test signals at 19kHz and 20kHz, referenced to a 1-watt output (at 0dB) across an 8-ohm non-inductive load. [Marantz PM-KI-Pearl Amplifier]



Graph 7: Tone control action referenced to 0dB at 1kHz. [Marantz PM-KI-Pearl Amplifier]